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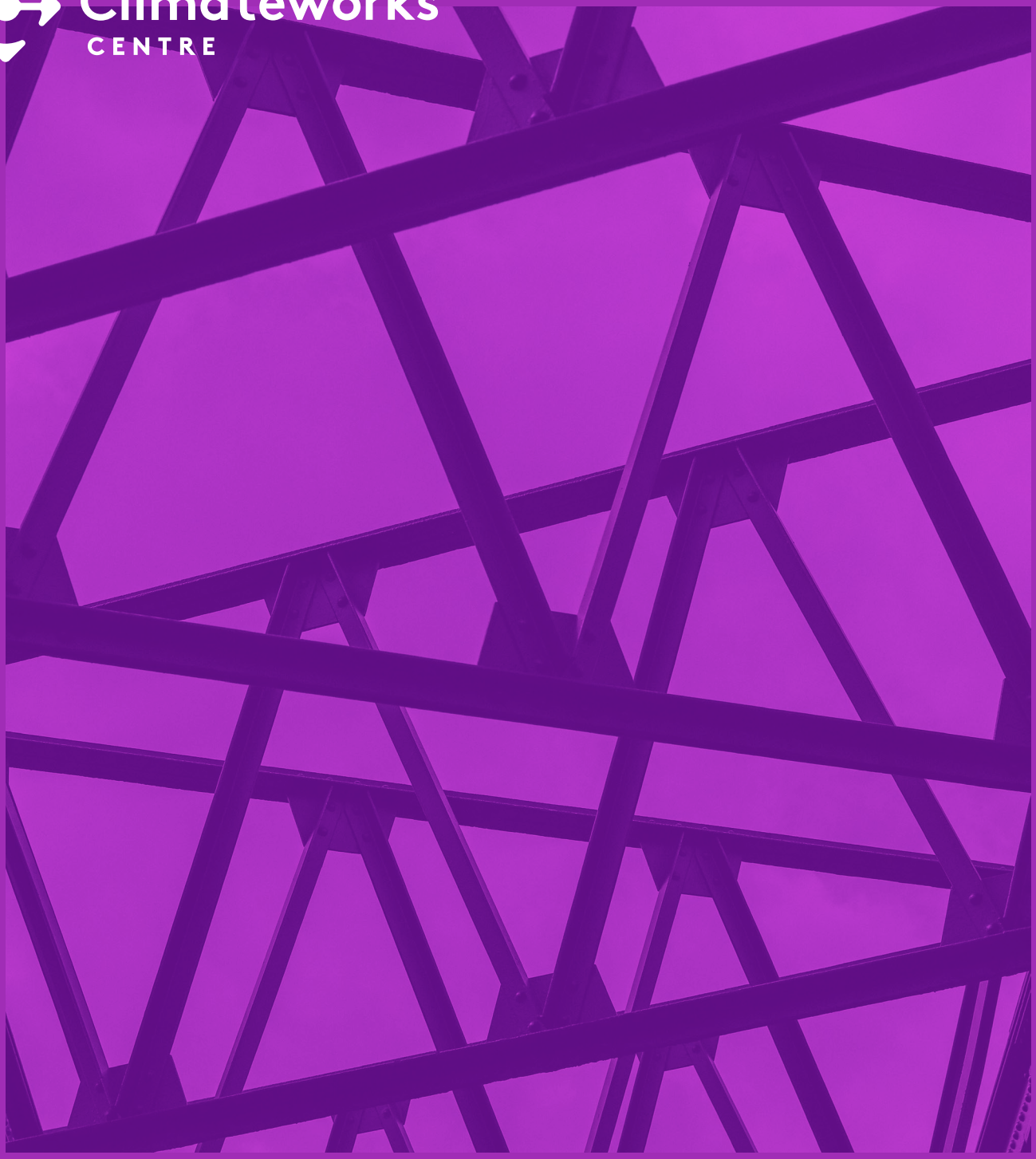

Building a market for Australian green iron:

Demand-side incentives for green commodities to supercharge Australia's renewable energy advantage

BRIEFING PAPER

DECEMBER 2025

ACKNOWLEDGEMENT OF COUNTRY

We acknowledge and pay respect to the Traditional Custodians and Elders – past and present – of the lands and waters of the people of the Kulin nation on which the Climateworks Centre office is located, and all of the Elders of lands across which Climateworks operates nationally. We acknowledge that sovereignty was never ceded and that this was and always will be Aboriginal land. More information.

ACKNOWLEDGEMENTS

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ABOUT US

Climateworks Centre bridges the gap between research and climate action, operating as an independent not-for-profit within Monash University. Climateworks develops specialist knowledge to accelerate emissions reduction, in line with the global 1.5°C temperature goal, across Australia, Southeast Asia and the Pacific.

Climateworks Centre, 2025, *Building a market for Australian green iron: Demand-side incentives for green commodities to supercharge Australia's renewable energy advantage*.

Seizing first-mover advantage in green iron

Australia has a unique opportunity to lead the world in green iron production. Geopolitical instability continues to create uncertainty around international climate commitments. In this context, developing a competitive green iron sector can realise economic benefits for Australia and support its neighbours and partners to decarbonise their economies.

Australia has long been a reliable exporter of raw commodities. Iron ore, in particular, remains one of Australia's most valuable natural resources. This, combined with Australia's abundant wind and solar energy potential, provides a strategic advantage for moving beyond raw exports to lead in the export of value-added green commodities, like green iron.

Steel is essential to the global economy and is used in energy infrastructure, construction and defence. As an intermediate product, green iron plays a crucial role in green steel production. Steel production is currently emissions-intensive, accounting for around 7 per cent of global emissions (International Energy Agency 2020). With long-term demand for steel expected to remain strong, decarbonising the industry is essential to meeting domestic and regional climate targets aligned with the Paris Agreement (International Energy Agency 2025).

By combining iron ore with low-cost renewable energy, Australia can develop green iron as a low emissions commodity supporting Asia's transition to net zero. Green iron, produced using renewable hydrogen and powered by renewable energy, is an opportunity to be seized.

Developing the capacity to produce green iron and then scaling green iron exports would see Australia capitalise on its natural strengths while decarbonising steel production domestically and regionally.

Embedding Australia's renewable energy resources into primary ore for export can accelerate emissions reductions while unlocking lasting economic growth.

Australia's history of successful bilateral trading partnerships, particularly in iron ore, provides a strong foundation for a new green export economy, when underpinned by long-term offtake agreements and joint investments supported by both the private sector and nation states.

Australia is uniquely positioned to lead the world in green iron production and trade. Success depends on establishing secure and sustainable markets for green products and addressing the cost gap between traditional iron and steel production and low-emissions alternatives, known as the 'green premium'. Lowering the green premium or managing the risk is essential for encouraging the transition to sustainable production methods and achieving climate goals.

Unlocking the green iron supply chain

Steelmakers in Australia and beyond are under growing pressure to decarbonise and are actively seeking cleaner supply chains. The requirement for steel presents a strategic opportunity for Australia to supply green iron to existing trading partners. Leveraging its abundant renewable energy, Australia can process its ore and minerals using renewable energy – embedding that renewable energy into green products.

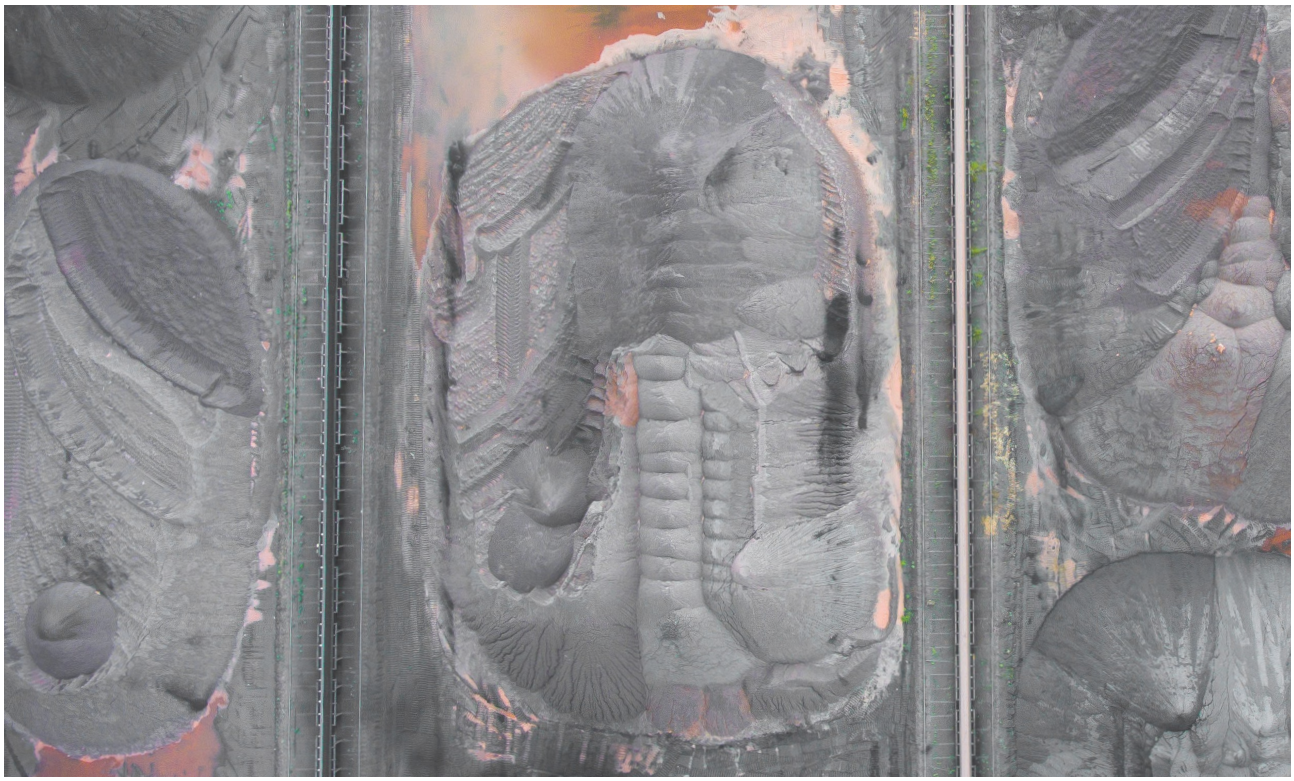
Scaling up green iron production requires firm commitments from buyers, enabling producers to invest in production capacity. Upfront costs are often high, and an absence of buyers discourages capital investment in the infrastructure and technologies needed to scale production. This creates a cyclical problem, as green iron can only become cost-competitive when produced at scale.

To produce competitive green iron, manufacturers need:

+ access to cheap, firmed renewable energy, primarily from solar, wind and hydrogen
+ investment in energy infrastructure to lower costs and improve production reliability
+ robust policy to attract investment
+ certainty of demand for green iron to finance large-scale production.

The sector faces a chicken-and-egg dilemma: manufacturers need demand to scale their supply, and conversely, buyers need a scalable and affordable supply to commit to demand. To break this cycle, a balance must be struck between green iron demand and supply.

Policy initiatives like Future Made in Australia help address supply-side challenges by de-risking investment and accelerating the development of green commodities. While these measures provide important financial support and strengthen Australia's export potential, they are not enough on their own. To be effective, they need to be paired with strong demand-side mechanisms in the region and beyond.



Advanced Market Commitments can help scale demand

One promising way to unlock demand for green iron is through an Advanced Market Commitment (AMC) – a promise to buy or subsidise a product once it is produced. AMCs aim to guarantee sufficient future demand to scale supply, serving as a demand-side mechanism that stimulates the development of products lacking strong market incentives.

AMCs address two key challenges: uncertainty about demand for green products and the risk that offtakers will not purchase green products. By guaranteeing green iron purchases, an AMC supports innovation and enables first-of-a-kind commercial deployments. AMCs also guarantee manufacturers of sufficient demand at a viable price, reducing revenue risk and justifying capital investment.

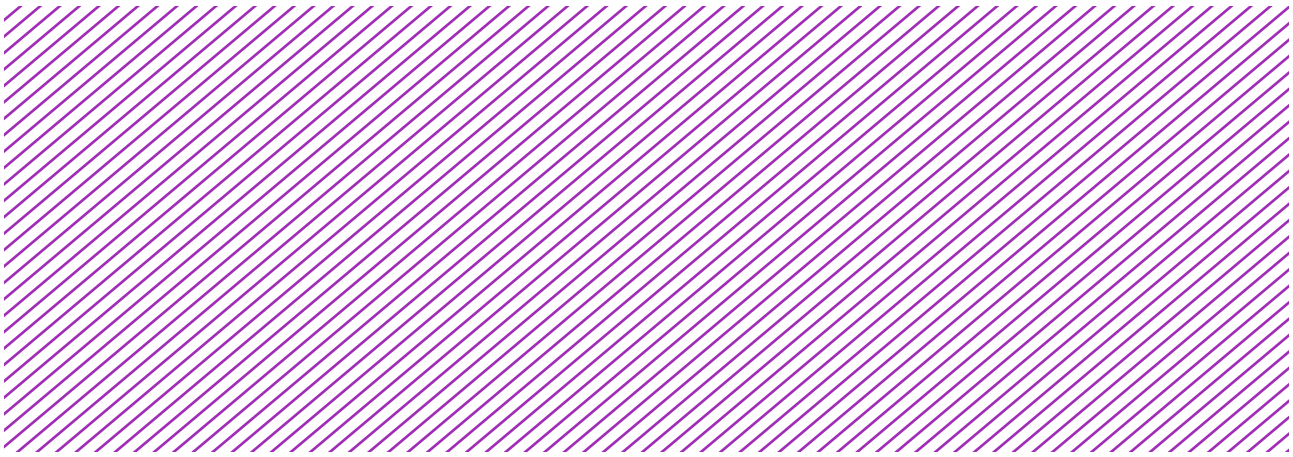
When paired with supply-side measures, AMCs can significantly accelerate the development of emerging markets for green products. They can offer the market certainty needed to unlock investment in infrastructure and renewable energy – critical components for scaling the production of green commodities. By reducing commercial and financial risk, AMCs support supply-side interventions and help build demand for green products. Put simply, AMCs can help balance the demand and supply of green products.

Lessons from existing Advanced Market Commitments

AMCs have been applied in other sectors. They successfully contributed to the development and supply of COVID-19 vaccines in lower-income countries, with donor governments making upfront commitments to purchase at scale (Kullinan 2023). Similarly, donor-backed AMCs have helped deliver pneumococcal vaccines to low-income and lower-middle-income countries, ensuring wide access and uptake (UNESCO 2025).

Applying an AMC to green steel or green iron is more complex. Unlike vaccines, which have a single end use or purpose, the end use of steel, and in this case, green steel, are diverse, ranging from cars to wind turbines and small componentry.. This leads to fragmented and complicated demand coordination. Iron and steel contracts also differ significantly from buyer to buyer, making traditional AMC models, which are best suited to uniform, large-scale products, more complex to apply.

To work in the Asian region, an AMC for green iron and steel should reflect the industry's complex supply chain and be flexible enough to meet the diverse needs of both government and industry stakeholders.



Tailored market-based approaches

There are existing models that could be applied to support demand for green steel. One example is the Sustainable Steel Buyers Platform (SSBP), a procurement aggregator mechanism launched by Rocky Mountain Institute in 2023. Currently operating in North America, the SSBP supports steel sector decarbonisation through collaborative procurement, helping major corporate steel buyers source cleaner steel through procurement agreements, managing contracts, standards reporting and carbon accounting (Rocky Mountain Institute 2025).

Adapting the SSBP model for Asia, with added functionality for green iron, could help bridge the gap between manufacturers and buyers across the region. It could offer a low-cost, practical way to coordinate demand across Asian iron and steel markets and build market confidence.

Australia could also consider establishing a Clean Commodities Trading Initiative (CCTI), a government-owned entity designed to reduce offtake risk and stimulate demand (Yates and Thurbon 2024; Pollard and Buckley 2024). A CCTI would procure domestically produced green iron, assuming ownership of both the physical product and its future green tradable value, which would be held by the CCTI to trade as a clean commodity credit in the relevant market (Yates and Thurbon 2024; Pollard and Buckley 2024).

A CCTI is a demand-side lever that would help absorb the cost of the green premium now, providing price and offtake certainty for green iron producers, along with reducing market risks. This would accelerate investment in domestic production by mitigating commercial uncertainty, allowing for rapid scale-up of demand and complementing supply-side initiatives such as the Future Made in Australia agenda.

Near-zero emissions processes will require verification using existing standards and methodologies, such as those developed by ResponsibleSteel and the Green Hydrogen Organisation. Global harmonisation on standards and methodologies can supercharge the ability to produce and trade future clean commodity credits in an entity like the CCTI.

The primary export market for Australia's green iron would likely be steelmakers in the Asia-Pacific region. In particular, China – where a high volume of green iron is likely needed, and where an emissions trading scheme was recently expanded to include steel manufacturing – and Japan and the Republic of Korea (ROK), where limited access to renewable energy makes it more challenging to decarbonise iron production (Transition Asia 2025; Miyamoto 2025). Long-term offtake agreements through the CCTI could help build a reliable supply chain for green products across the region.

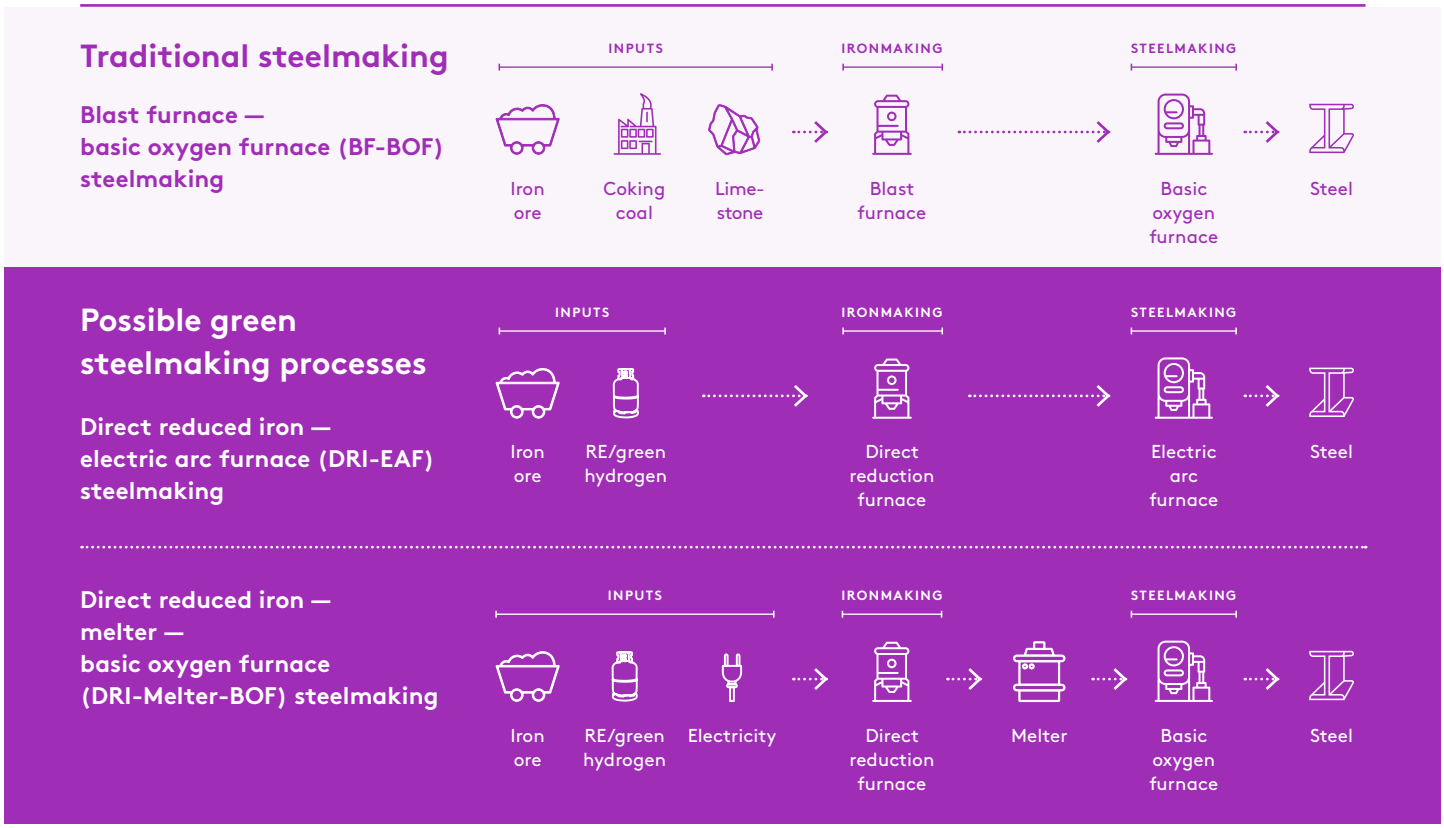
Challenges in decarbonising the steel supply chain

Green iron manufacturing could be both economically competitive for Australia and a viable means of meeting commitments to decarbonise steel production. Greening the Asian steel supply chain is a long-term process that will require market transformation and coordination to succeed.

Most Asian steelmakers use integrated production processes, producing both iron and steel within the same facility. This arrangement is highly efficient, reducing transport and storage costs and reusing heat and energy. The ironmaking stage – where a coal-fired blast furnace converts iron ore to iron – is by far the most emissions-intensive. The resulting iron is then processed in a basic oxygen furnace to produce steel.

Decoupling the iron production and steelmaking stages presents challenges. Countries like Japan and the ROK have designed integrated plants for maximum efficiency (Goldstein 2017; Pollard and Buckley 2024). Transitioning away from the current model disrupts operations and reduces efficiencies. While countries' net zero plans may differ in speed and ambition, the direction is clear: decarbonising steelmaking is essential to achieve net zero by 2050. However, traditional steelmakers face major barriers – including limited access to renewable energy (RE) and challenges in hydrogen transport – making it unlikely that they will transition the sector alone. Market direction will need to be clear and unequivocal.

FIGURE 1: Steel production processes



Other green technologies, including electrolytic steelmaking, could form part of future pathways.

Opportunities for Australia to lead

Australia is well positioned to support the shift to green iron by deploying a long-term, collaborative approach that aligns with and supports the priorities of regional trading partners.

Australia is the world's largest iron ore exporter, with established trade infrastructure, strong commercial relationships and a trusted reputation as a supplier.

This provides a solid foundation for a green iron export market (Statista 2025). Additionally, Australia has a comprehensive network of bilateral and regional free trade agreements (FTAs) that reduce trade barriers, lower tariffs and ease market access for its exports. These include the Regional Comprehensive Economic Partnership (RCEP) and bilateral FTAs with China, Japan, the ROK and plurilateral FTAs with ASEAN.

Beyond Australia's neighbours in Asia, Europe also presents early export opportunities. The European Union (EU) carbon price and Carbon Border Adjustment Mechanism (CBAM) ensure that importers pay for the embedded carbon in non-green products, thereby increasing the competitiveness of green products and, consequently, attracting investment in the manufacturing of products like green iron.

Rising public procurement and defence spending also offer new demand-side opportunities. Even modest commitments to green steel procurement in these areas could send a strong market signal. The new German coalition government, for example, plans to use public procurement rules to drive investments in green products and has set up a dedicated fund for strategic infrastructure projects (Kyllmann 2025).

Australia would export its green iron to trading partners with steelmaking capability but limited access to hydrogen and renewable energy. Reaching net zero will require market transformation, and developing demand for green iron will depend on strategic government intervention.

A successful precedent exists in the Australia–Japan liquefied natural gas (LNG) partnership established in the 1980s. This transformational commercial relationship was built on a shared opportunity. Government-facilitated long-term offtake agreements provided the commercial certainty needed to attract large-scale private investment and build the infrastructure that underpinned decades of economic growth. This combination of strategic diplomacy, policy support and partnership-building created enduring trade relationships and positioned Australia as a leading global energy exporter.

Building a market for green iron will require a similar strategic and collaborative vision. The current market for Hot Briquetted Iron (HBI) is small, but countries such as Japan and the ROK already have the capacity and experience to use HBI in their existing steelmaking processes. China and the EU also import HBI, presenting additional market opportunities (the Superpower Institute 2025).

To achieve net zero goals, coal-reliant blast furnaces will need to be phased out. Relining blast furnaces – an expensive process that occurs every 13–17 years – locks in carbon-intensive production for decades. Australia can take advantage of upcoming infrastructure investment cycles in partner countries to promote the benefits of green iron imports, aligning support and trade strategies with these key transition points (the Superpower Institute 2025).

Strategic diplomacy across the region can develop existing trade partners – many of whom are also steel producers – into partners in a shared decarbonisation opportunity, contributing not only demand but also expertise and investment.

From climate solution to competitive advantage

Green iron is more than a climate solution – it is a strategic, economic and geopolitical opportunity. As global trade shifts toward more flexible, regional partnerships, Australia has a unique chance to lead the next generation of clean commodity trade in the region and beyond. This is especially true in Asia, where energy security and industrial resilience are rising priorities.

Developing a green iron industry can future-proof Australia's exports, accelerate domestic industrial decarbonisation and support regional partners in reducing emissions.

To seize this opportunity, strong and credible demand signals are essential. Without demand-side interventions, supply-side innovation will stall. Mechanisms like AMCs can play a critical role in reducing offtake risk, unlocking investment and giving producers the confidence to scale.

With the right policy alignment, Australia can position itself as a key player in the global green steel supply chain – competitive, resilient and central to a net zero economy. Green trade will not follow traditional export models. As the global landscape shifts, there is growing space for flexible, regional partnerships focused on resilience and energy security.

In an evolving and more multipolar world, where Asia plays an increasingly central role, Australia can position itself as a collaborative, resilient and competitive green energy superpower. COP31 in 2026 could further enhance Australia's leadership, deepening its strategic ties with partners like Japan and the ROK. Collaborating on decarbonisation will strengthen mutual resilience and competitiveness in a new net zero global economy.

Now is the time to act, and by combining strong policy with market intervention, green iron can take its place as a critical commodity – delivering emissions reductions, industrial strength and economic prosperity in a changing world.

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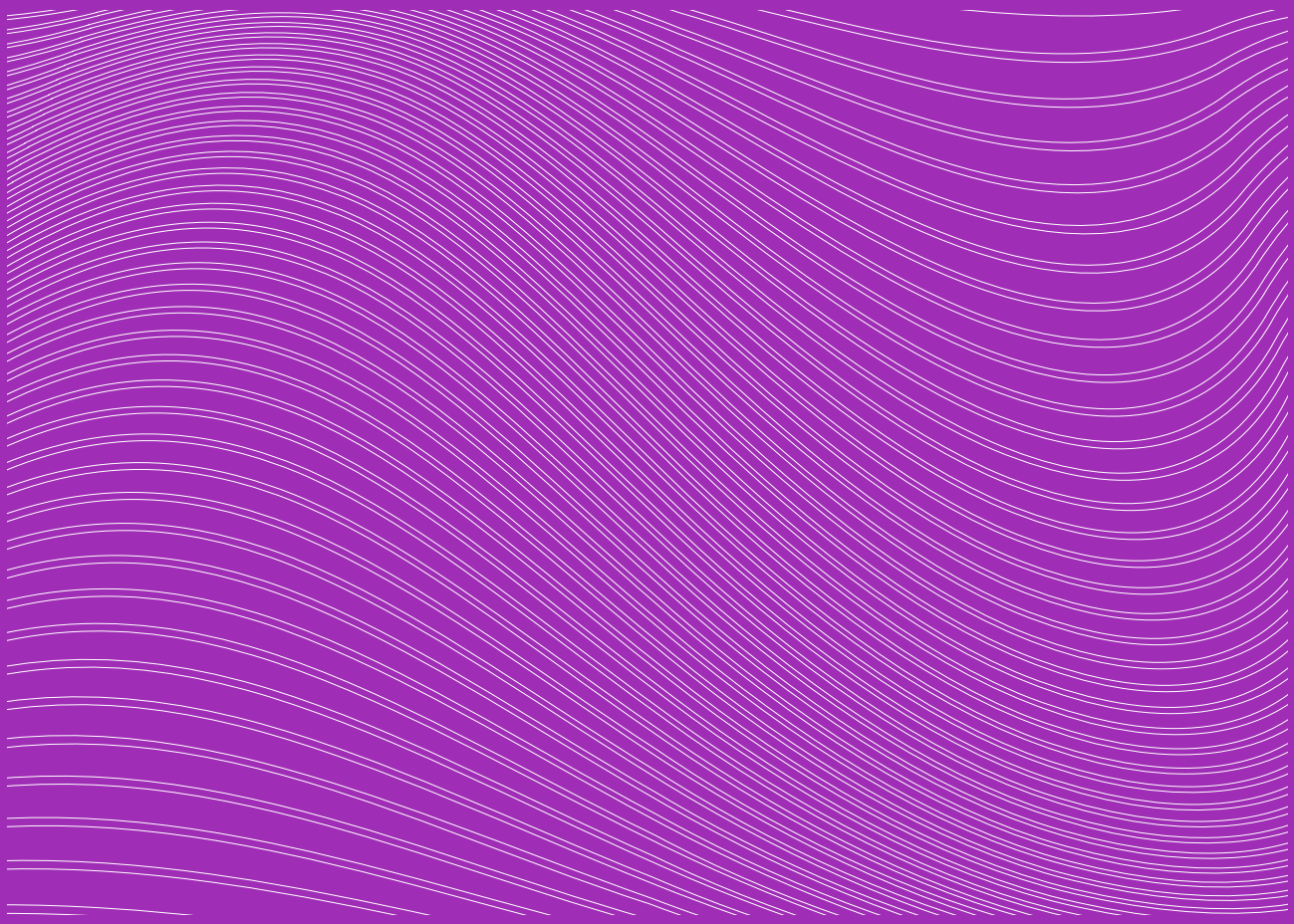

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